

and must be considered at present to be peculiar to Central Africa.

Leaving out of consideration the species common to tropical Africa generally, we know :—

1. From Lado and Lake Nyanza three species, two of which are also found in the East-African littoral.

2. From Monbuttu and Semmio seven species, of which not less than six are West-African; therefore this portion of the fauna of the upper waters of the Congo is probably continuous along the course of this river to the west coast.

3. From Kilima-ndjaro eleven species, of which three occur also on the west and four on the east coast.

4. From Mpwapwa and Ugogo four species, of which one is known also from the west and two from the east coast.

5. From the shores of Lake Tanganyika eleven species, of which one only has been found also on the west coast, whilst eight occur in the eastern littoral. However, it should be remembered that probably most of these species were collected on or near the eastern shores of the lake.

6. From Lake Nyassa six species, of which one only is West- and three others East-African.

XL.—*Description of Scolopendra valida*, Lucas, with Notes on allied Species. By R. I. POCOCK, Assistant, Natural-History Museum.

THIS species of *Scolopendra* appears to be but little known, and its history up to the present time may be told in a very few words.

Between 1836 and 1844 it was first described by Lucas from the Canary Islands. In 1844 one of the specimens from which Lucas drew up his description was presented to the British Museum by M. Barker Webb, and was recharacterized by Newport in the Trans. Linn. Soc. for the following year. Since then no new account of the species has been printed. In 1881 Dr. Kohlrausch, trusting to the descriptions given by Newport and Lucas and to the figure published by the latter author, was led to believe that the nearest ally to this form must be *Sc. morsitans* of Linnæus. But even a superficial examination of a specimen shows that it may at once be distinguished from the above-mentioned species by the possession of certain characters which exist conjunctly only, I believe, in some few neotropical forms.

That a species from North Africa possesses characters which seem to point to relationship between it and some species from South America is of itself a fact of sufficient interest to deserve special mention; but it is perhaps scarcely of a greater interest than certain others connected with the range of *Sc. valida*, so far as is at present known, in its own distributional area.

As stated above, it was first discovered in the Canary Islands, and hitherto its existence has not to my knowledge been reported elsewhere. But in addition to specimens brought from Gran Canaria by the Rev. A. E. Eaton the British (Natural History) Museum possesses specimens from Bushire, on the Persian Gulf, in the same degree of N. latitude as the Canary Islands, and a long series of forms from Socotra, an island some 1200 English miles to the south of Bushire.

It will thus be seen that it occurs in two places situated near the eastern and western extremities of the Mediterranean district of the Palæarctic Region and in an island in the north-eastern portion of the Ethiopian Region.

Whether or not it will be found in localities between those already pointed out, it were premature to surmise. Suffice it to say that although many species of *Scolopendra* from North Africa are known, nothing resembling *Sc. valida*, Lucas, has ever been recorded as taken.

The specimens from which the following description has been taken have been preserved in spirits of wine.

Scolopendra valida, Lucas.

1836-44. *Scolopendra valida*, Lucas, in Webb & Berthelot, Hist. nat. des Iles Canaries, ii. Entomol. p. 49, tab. vii. fig. 14.

1845. *Scolopendra valida*, Newport, Trans. Linn. Soc. xix. p. 402.

Colour.—Varying much with size, smaller specimens (30-60 millim.) being mostly testaceous, with the hinder portion of the body slightly darker. Two specimens (90 millim.) from Socotra testaceous; others of the same length from Gran Canaria and Socotra with olivaceous anterior and ochraceous posterior tergites. Three specimens from Bushire (85-114 millim.) with head-plate, proximal segments of antennæ, and distal segments of anal legs olivaceous, the rest of the body testaceous or ochraceous. Two specimens from Socotra

120–130 millim.) with anterior tergites olivaceous, posterior ochraceous, proximal segments of antennæ and distal segments of anal legs nearly black, legs pale green, head-plate and first tergite olivaceo-castaneous. One specimen (190 millim.), also from Socotra, exhibits coloration of the two last, but has the legs nearly black.

Antennæ consisting of from 19–27 segments, the number in some instances being different on the two sides; varying in length from a little less than one third the length of the body to a little less than one fifth. Three or four basal segments bare, the rest clothed thickly with short hair; segments more moniliform in the smaller specimens.

Head-plate very constant in shape, the width in nearly every case being equal to the length. In the larger forms equal to about three fourths the width of the anal tergite, in the smaller the two plates are approximately equal in width. Faintly punctured and always marked throughout its length by two faint anteriorly diverging sulci.

Plates of maxillary prosternite either in contact or slightly separated; each plate furnished with teeth which exhibit various grades of concrecence. In the smaller forms these teeth are mostly four in number, small, distinct, and tolerably sharp. In the larger forms the external tooth remains separate, but the three internal begin to coalesce until, in the largest specimens examined, each plate appears to be furnished with but two teeth—a larger internal, which is more or less obscurely divisible into two or three parts, and a smaller external.

Basal tooth always bidentate, though sometimes in small specimens obscurely so.

Tergites, except the first and last, always bisulcate, except the five, six, or seven first marginate. The first tergite sometimes showing very faint signs of the two sulci, but always deeply grooved transversely in its anterior half. The anal tergite never with a central longitudinal sulcus.

Sternites, except the last and the first (? always), bisulcate; the last sometimes with a faintly-marked median longitudinal depression; lateral margins slightly converging posteriorly, the angles always rounded, and the posterior margin straight or very slightly convex.

Anal pleuræ finely punctured, more or less truncate; in larger forms furnished with a short process; process usually armed with three spines, but the number of spines varying from two to six, and in some cases differing upon the two sides. A spine always present on the posterior external mar-

gin of each pleura midway between the anal tergite and the process.

Proximal tarsal segment of all the legs, except those of the anal somite, always armed with a spur.

Claws of all the legs always armed with two spurs.

Femora of all the legs, except those of the nineteenth, twentieth, and twenty-first somites, unarmed. Femora of legs of the nineteenth somite always armed above at the apex with one or two spines. Femora of legs of the twentieth somite always armed above at the apex with two or three spines, which in larger forms are borne upon a longer process. An accessory spine may be present upon the middle of the upper surface of the femur.

Femora of anal somite furnished mostly with about 15 or 18 spines arranged in longitudinal series typically as follows:—3 . 2 on the upper surface, 3 on the upper inner margin, 2 on the inner surface, 2 . 3 . 2 on the lower surface; but since each series is liable to variation either in the number or position of any or all of its constituent spines, it follows that so many modifications of this typical arrangement are possible that it rarely happens that two individuals are exactly alike, or that one individual presents the same arrangement of spines upon the femora of the right and left sides. Femoral process conspicuous, armed with from two to six spines, but for the most part with five—two larger at the apex, three smaller nearer the base. Length of anal legs varying from one fourth to one seventh of the length of the body. Thickness of the femur or of the patella varying from one third to one half of its length. The patella not armed with spines.

Length of largest specimen from	Gran Canaria	109	millim.
”	”	”	Bushire 113 ”
”	”	”	Socotra 190 ”

To redescribe the forms most nearly allied to *Sc. valida*, Lucas, were waste of time and space, since excellent descriptions of them may be found in the papers of Dr. Meinert, Dr. Kohlrausch, and von Porath, to which references are given.

Scolopendra prasina, C. Koch.

1863. *Scolopendra prasina*, C. Koch, Die Myriopoden, ii. p. 23, fig. 146.
 1876. *Scolopendra nitida*, Porath, Sv. Vet. Akad. Handl. Bih. iv. no. 7, p. 8.

1881. *Scolopendra prasina*, Kohlrausch, Arch. f. Naturg. 47, p. 122.

1886. *Scolopendra prasina*, Meinert, Proc. Amer. Phil. Soc. xxiii. p. 192.

I have not seen the type specimen of *Sc. nitida* of von Porath, yet, owing to the fulness of the description of it, I cannot doubt but that it is identical with *Sc. prasina* of C. Koch.

Scolopendra viridicornis, Newport.

1844. *Scolopendra viridicornis*, Newport, Ann. & Mag. Nat. Hist. xiii. p. 97. no. 12.

1844. *Scolopendra punctidens*, id. ibid. no. 20.

1844. *Scolopendra variegata*, id. ibid. no. 21.

1844. *Scolopendra cristata*, id. ibid. p. 98. no. 23.

1876. *Scolopendra cristata*, Porath, Sv. Vet. Akad. Handl. Bih. iv. no. 7, p. 6.

1881. *Scolopendra cristata*, Kohlrausch, Arch. f. Naturg. 47, p. 117.

1886. *Scolopendra cristata*, Meinert, Proc. Amer. Phil. Soc. xxiii. p. 192.

Owing to the inadequacy of Mr. Newport's descriptions, upon which Dr. Kohlrausch was wholly dependent, it was not possible for him to discover the above-given synonymy. This, from an examination of the type specimens, I have without difficulty succeeded in doing.

Scolopendra gigas, Leach.

1814. *Scolopendra gigas*, Leach, Trans. Linn. Soc. xi. p. 383.

1845. *Scolopendra gigas*, Newport, Trans. Linn. Soc. xix. p. 399.

1845. *Scolopendra gigantea*, id. ibid. p. 400.

1876. *Scolopendra gigantea*, Porath, Sv. Vet. Akad. Handl. Bih. iv. no. 7, p. 5.

1881. *Scolopendra gigas*, Kohlrausch, Arch. f. Naturg. 47, p. 119.

1886. *Scolopendra gigas*, Meinert, Proc. Amer. Phil. Soc. xxiii. p. 191.

Not to overburden the text with names I have refrained from repeating many synonyms, which may be found in the last three of the above-cited works. I have thought it desirable merely to confirm by an examination of type specimens the conclusion arrived at by von Porath, from descriptions alone, as to the identity existing between *Sc. gigas* of Leach and *Sc. gigantea* of Newport. Whether or not the former be synonymous with *Sc. gigantea* of Linnæus it is quite impossible to say, since the description of the latter and the figure from which it was taken, agree in one particular alone, namely, that they are generally applicable to all *Scolopendra*, but particularly applicable to none.

The following table will serve to show how *Sc. valida*, Lucas, may be distinguished from the allied South-American species, which agree with it in possessing spines upon the femora of the nineteenth and twentieth pairs of legs and a deep transverse furrow upon the first dorsal plate:—

- A. Sternites smooth, not bisulcated; patellæ of anal legs armed with spines *prasina*, C. Koch.
S. Amer.
- B. Sternites bisulcated.
- a. Last tergite with a median longitudinal crest *viridicornis*, Newp.
S. Amer.
- b. Last tergite without a median longitudinal crest.
- a. Femora of all the legs armed; patella of anal leg armed *gigas*, Leach. S.
Amer.
- b. Femora of nineteenth and twentieth pairs of legs armed; patella of anal leg unarmed *valida*, Lucas. N.
Afr.
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XLI.—On the Survival of Spongillæ after the Development of Swarm-larvæ. By M. WELTNER*.

THE assertion made by Laurent (1844) that our freshwater sponges perish after the development of swarm-larvæ was disputed by Lieberkühn (1857). Marshall (1884) supposes that there is an alternation of generations in *Spongilla lacustris*. From the gemmulæ which live through the winter there originate in the spring male and female *Spongillæ* which fertilize one another. The males die after the development of the semen; the females, after the coming forth of the larvæ, become neuters and perish in the autumn with formation of gemmules. The offspring of the male and female specimens remain neuters in the first year and likewise break up into gemmules in the autumn.

Götte (1886), on the contrary, is of opinion that reproduction universally causes the death not only of the *Spongillæ*, but of sponges in general. The parts affected by the repro-

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